

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number  
**WO 2005/003294 A2**

(51) International Patent Classification<sup>7</sup>: **C12N**  
(21) International Application Number:  
PCT/US2004/011833

(22) International Filing Date: 16 April 2004 (16.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/479,931 18 June 2003 (18.06.2003) US  
60/493,014 5 August 2003 (05.08.2003) US  
60/496,548 19 August 2003 (19.08.2003) US

(71) Applicant (for all designated States except US): **THE SCRIPPS RESEARCH INSTITUTE** [US/US]; 10550 North Torrey Pines Road, La Jolla, CA 92037 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DEITERS, Alexander** [DE/US]; 387 Nautilus Street, Apt. L, La Jolla, CA 92037 (US). **CROPP, Ashton, T.** [US/US]; 863 Sapphire Street #3, San Diego, CA 92109 (US). **CHIN, Jason, W.** [GB/GB]; 29 York Street, Cambridge, CB1 2PZ (GB). **ANDERSON, Christopher, J.** [US/US]; 124 Mason St., Apt.401, San Francisco, CA 94102 (US). **SCHULTZ, Peter, G.** [US/US]; 1650 La Jolla Rancho Road, La Jolla, CA 92037 (US).

(74) Agents: **QUINE, Jonathan, Alan et al.**; Quine Intellectual Property Law Group, P.C., P.O. Box 458, Alameda, CA 94501 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **UNNATURAL REACTIVE AMINO ACID GENETIC CODE ADDITIONS**

(57) Abstract: This invention provides compositions and methods for producing translational components that expand the number of genetically encoded amino acids in eukaryotic cells. The components include orthogonal tRNAs, orthogonal aminoacyl-tRNA synthetases, pairs of tRNAs/synthetases and unnatural amino acids. Proteins and methods of producing proteins with unnatural amino acids in eukaryotic cells are also provided.

WO 2005/003294 A2